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Mr. J. M. Ferrall drew the attention of the Academy to several drawings, and a preparation, exhibiting a new and beautiful mechanism belonging to the human eye, and discovered by him in April last, while engaged in researches on certain diseases of the orbit, which the received anatomy of those parts did not appear to him to explain.

The new structures consisted of a distinct fibrous tunic, investing the globe of the eye, facilitating its movements, and separating it from all the surrounding tissues.

The anatomy of the schools, and of the best authors, from the earliest time to the present, teaches that the ball of the eye is in contact with its muscles, and, between them, with a quantity of adipose substance on which it was supposed to be cushioned. It was difficult to conceive, however, why the eye did not manifest any of the symptoms incidental to pressure suddenly endured, whenever those muscles were brought into action, since there appeared to be no provision for its protection. That pressure, suddenly made on the globe of the eye, produces the sensation of a spark or flash of light, is familiarly known as the consequence of a slight blow on the eye.

The act of sneezing is frequently followed by a similar phenomenon, and Sir Charles Bell has shown, in a paper published in the Philosophical Transactions, that it is occasioned by the sudden pressure on the ball of the eye, by the orbicularis palpebrarum or principal muscle of the eyelids, which is suddenly brought into action by the respiratory nerves. The four recti muscles, which move the eye in different directions, being favourably placed, (according to the received anatomy), for exercising such a pressure, it might have been expected that a similar phenomenon would have resulted; but no such coruscations have ever been observed to follow their most rapid actions.

The discovery of this tunic, which Mr. Ferrall has ventured to term the *TUNICA VAGINALIS OCULI*, at once explains

the absence of those phenomena, by showing that a protective provision has always existed to prevent them.

Mr. Ferrall went on to state, that the most beautiful portion of this mechanism remained to be described. It was one of those exquisite manifestations of design which abound in the animal frame.

In the anterior portion of this tunic were to be found six different well defined openings, through which the tendons of the muscles pass to their insertion in the sclerotic coat of the eye, and over which they play as over pulleys in their progress.

The annexed engravings, executed from original drawings made in April, 1840, for Mr. Ferrall's clinical lectures in St. Vincent's Hospital, display this conformation faithfully.

Fig. 1, shows the tendon of the internal rectus, emerging from behind the tunic, and passing through its pulley to be inserted in the eyeball.

Fig. 2, represents the eyeball drawn downwards, in order to expose the exit of the tendons of the superior

rectus and superior oblique muscles ; the superior rectus plays over its pulley, and the superior oblique passes beneath the former to reach its insertion in the sclerotic coat.

The presence of some such contrivance as is here exhibited might have been inferred from its necessity, and yet it has never been suspected to exist. The four recti muscles running from the bottom or apex of the orbit, forward to grasp the eye, must, without it, have had the power of retracting the ball of the eye, and yet no such retraction has ever been observed in the human eye. Retraction is certainly performed in some of the lower classes of animals; but *they* are provided with a strong retractor muscle, independent of the four recti muscles. Again, the rotatory movements of the human eye, which enlarge the sphere of vision, and contribute to expression, are not easily accounted for by the received anatomy of the orbit, because the course of the muscles from the bottom of the orbit forwards, manifestly gives them a power of retracting rather than of rotating the eye upon its centre. Thus, then, there appeared to be no provision for

the rotatory movements of the ball of the eye, which are of *constant occurrence*, and nothing to prevent retraction, which we knew *did not take place*. A knowledge of the existence of this new and beautiful mechanism reconciles and explains these anatomical and physiological contradictions.

Mr. Ferrall said, he had found these structures in several of the lower animals, in whom they appear to enable the recti to antagonize the proper retractor muscles.

Several phenomena in diseases of those parts, formerly obscure, are now easily understood; but Mr. Ferrall refrained, on this occasion, from discussing questions of a practical nature.

The Auditors appointed by Council to examine the Treasurer's Account, for the year ending December 31, 1840, reported as follows :

" We have examined the above account,* with the vouchers produced, and have found it to be correct; and we find that there is a balance in Bank of £100 7s. and in the Treasurer's hands, of £110 9s. 4d. making a total balance of 210 16s. 4d.

" (Signed,)

" FRANC SADLEIR.

" SAMUEL LITTON.

" *March, 13th 1841.*"

" The Treasurer reports that there is £1390 17s. 4d. in three per cent. consols, and £1526 6s. 1d. in three and a-half per cent. Government Stock, to the credit of the Academy, in the Bank of Ireland; the latter being the Cunningham Fund.

" (Signed,)

" THOMAS HERBERT ORPEN.

" *March 18th, 1841.*"

The ballot for the annual election having closed, the scrutineers reported that the following gentlemen were duly elected Officers and Council for the ensuing year :

* Entered in the Treasurer's book.